National Rural Electric Cooperative Association

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June 8, 1992

Ms. Donna R. Searcy, Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Notice of Proposed Rulemaking -- ET Docket No. 92-9

Dear Ms. Searcy:

The National Rural Electric Cooperative Association (NRECA) hereby submits its comments regarding the Federal Communications Commission's Notice of Proposed Rulemaking (NPRM), 7 FCC Rcd 1542, FCC 92-20, released February 7, 1992, ET Docket No. 92-9.

Enclosed are an original plus nine copies of NRECA's comments. Please provide a personal copy to each of the Commissioners.

Sincerely,

Bob Bergland
Executive Vice President

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Redevelopment of Spectrum to	)	
Encourage Innovation in the	)	ET Docket No. 92-9
Use of New Telecommunications	)	
Technologies	)	

To: The Commission

COMMENTS OF THE NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION

Pursuant to Section 1.415 and 1.419 of the Federal Communication Commission's (FCC) Rules, the National Rural Electric Cooperative Association (NRECA) hereby submits this its comments on the *Notice of Proposed Rulemaking* (NPRM), 7 FCC Rcd 1542, FCC 92-20, released February 7, 1992, in the above-captioned proceeding.

I. Introduction

The National Rural Electric Cooperative Association (NRECA) is the national association of more than 1,000 consumer-owned rural electric generation & transmission and distribution systems which supply central station electricity to more than 25 million people in the rural areas of 2600 counties in 46 states. Rural Electric Cooperatives serve some 75% of the land area and operate half of all of the miles of electric lines in the United States, often providing services to the farthest reaches of our nation. Rural electric systems average 5 consumers per mile of line, compared with an average of 35 consumers per mile of line for other utilities.

NRECA is strongly opposed to any effort to require rural electric cooperatives and other utilities to give up their use of assigned frequencies in the 1850-2200 MHz band. The frequencies assigned to electric utilities in that band are used for the essential purposes of monitoring and controlling the flow of electric power, communicating in times of natural disaster, and detecting, isolating and solving problems before they result in a major disruption of electric service. Electricity, unlike most commodities and services, moves at the speed of light and therefore depends upon a telecommunications system that is

similarly fast and reliable. A forced migration to higher frequencies could jeopardize electric reliability.

The following NRECA member systems, including some major Generation and Transmission Cooperatives (G&T's) that serve as many as 200 smaller Distribution Cooperatives, are among those having existing frequency assignments in the 1850-2200 MHz band:

Alabama Electric Cooperative, Inc.
Altamaha Electric Membership Corporation
Arizona Electric Power Cooperative, Inc.
Basin Electric Power Cooperative
Berkeley Electric Cooperative, Inc.
Big Rivers Electric Corporation
Blue Ridge Electric Cooperative, Inc.
Blue Ridge Membership Corporation
Bluebonnet Electric Cooperative, Inc.
Brazos Electric Power Cooperative, Inc.
Cajun Electric Power Cooperative, Inc.
Carroll Electric Cooperative Corporation
Central Electric Power Cooperative
Central Iowa Power Cooperative
Chugach Electric Association, Inc.
Colquitt Electric Membership Corporation
Cooperative Power Association
Corn Belt Power Cooperative
Cuivre River Electric Cooperative, Inc.
Cumberland Electric Membership Corporation
Dairyland Power Cooperative
Deseret Generation & Transmission Cooperative
Dixie Electric Membership Corporation
East Central Electric Association
East Kentucky Power Cooperative, Inc.
East River Electric Power Cooperative, Inc.
Empire Electric Association, Inc.
Federated Rural Electric Association
Flint Electric Membership Corporation
Four County Electric Membership Corporation
Gibson County Electric Membership Corporation
Golden Valley Electric Association, Inc.
Green River Electric Corporation
Guadalupe Valley Electric Cooperative
Hart County Electric Membership Corporation
Henderson-Union Rural Electric Cooperative Corporation
Hoosier Energy Rural Electric Cooperative, Inc.
Intermountain Rural Electric Association
Jackson Electric Membership Corporation
Jasper Newton Electric Cooperative, Inc.
Jefferson Electric Membership Corporation
Johnson County Electric Cooperative Association
KAMO Electric Cooperative, Inc.
Lake Region Electric Cooperative, Inc.

Lea County Electric Cooperative, Inc.
Lower Colorado River Authority
Medina Electric Cooperative, Inc.
Minnkota Power Cooperative, Inc.
Mitchell Electric Membership Corporation
Moon Lake Electric Association, Inc.
Navopache Electric Cooperative, Inc.
North Arkansas Electric Cooperative, Inc.
North Georgia Electric Membership Corporation
Northwest Electric Power Cooperative, Inc.
Northwest Iowa Power Cooperative
Owen Electric Cooperative, Inc.
Palmetto Electric Cooperative, Inc.
Petit Jean Electric Cooperative Corporation
Plains Electric Generation & Transmission Cooperative, Inc.
Platte Clay Electric Cooperative, Inc.
Plumas Sierra Rural Electric Cooperative
Rappahannock Electric Cooperative
Rayle Electric Membership Corporation
Runestone Electric Association
Rushmore Electric Power Cooperative
Sam Houston Electric Cooperative, Inc.
San Bernard Electric Cooperative, Inc.
Satilla Rural Electric Membership Corporation
Sho-Me Power Corporation
South Mississippi Electric Power Association
South Texas Electric Cooperative
Southern Illinois Power Cooperative
Southern Maryland Electric Cooperative, Inc.
Southside Electric Cooperative
Southwest Tennessee Electric Membership Corporation
Sumter Electric Cooperative, Inc.
Sunflower Electric Cooperative, Inc.
Talquin Electric Cooperative, Inc.
Tri-State Generation and Transmission Association, Inc.
Union Rural Electric Cooperative, Inc.
United Power Association
Valley Electric Association, Inc.
Warren Rural Electric Cooperative Corporation
Western Farmers Electric Cooperative

Each of these NRECA member systems will suffer hardships, in varying amounts, if they are forced to vacate this band. The lost spectrum would have to be replaced because operating electrical transmission and distribution systems at reduced reliability would not be an option. Reduced reliability from other data and voice transmission media or leased circuits, lack of suitable frequencies in other private microwave bands, and the expense involved in replacing microwave systems with fiber optic systems or switching to higher frequency bands (where feasible), would all contribute to those hardships. The high costs are

largely attributable to the fact that NRECA's member systems operate in sparsely populated areas and their facilities are widely dispersed. Common carrier services that are reliable enough for electric utility operations generally do not exist in these areas, so they would have to be constructed. Substituting fiber optic circuits for the existing frequencies in the 1850-2200 MHz band would be unreasonably expensive and impractical. Hundreds of miles of redundant fiber optic installations would be required to provide the reliability necessary for electric utility operations.

II. Background

The FCC initiated this proceeding on January 16, 1992, to develop a "spectrum reserve" for emerging technologies with the adoption of the NPRM in ET Docket No. 92-9, FCC 92-20. The proposals contained in the NPRM have been the source of widespread concern, controversy, and confusion. A number of formal requests for clarification and reconsideration have been filed:

On February 27, 1992, the Utilities Telecommunications Council (UTC) filed a letter with the Private Radio Bureau (PRB) requesting clarification of the PRB's licensing policies with respect to 2 GHz private microwave applications received after January 16, 1992.

On March 16, 1992, UTC, the American Petroleum Institute (API), the Association of American Railroads (AAR), and the Large Public Power Council (LPPC), filed a "Motion for Extension of Time" requesting additional time for filing comments and reply comments in response to the FCC's NPRM. Subsequently, on April 1, 1992, the The FCC's Office of Engineering and Technology (OET) released an Order extending the time for filing comments and reply comments in ET Docket No. 92-9 to June 5, 1992, and July 6,1992, respectively.

On March 20, 1992, AAR filed a "Petition for Clarification" and Century Telephone filed a "Petition for Reconsideration" both requesting that the FCC clarify/reconsider its NPRM proposal regarding the secondary licensing status of new 2 GHz facilities. The FCC, on May 14, 1992, issued a public notice clarifying its conditional secondary licensing policy for fixed microwave applications in the 2 GHz band received after January 16, 1992.

On March 31, 1992, UTC filed a "Petition for Rulemaking" addressing the steps which the FCC should have taken before (or when) it issued the NPRM in ET Docket No. 92-9.

On April 10, 1992, AAR, API and LPPC, filed a "Petition to Suspend Proceeding" asking that the FCC suspend procedural dates

and hold ET Docket No. 92-9 in abeyance until the FCC has taken certain actions with the National Telecommunications and Information Administration (NTIA) in regard to shared use of the Federal government's 1710-1850 MHz band.

NRECA supports these filings and urges the FCC to give them prompt and favorable consideration.

III. Comments on NPRM, Docket No. 92-9

A. The NPRM proposes to reallocate the 1850-1990 MHz, 2110-2150 MHz and 2160-2200 MHz bands. However, the NPRM does not contemplate a reallocation of the 1990-2110 MHz broadcast auxiliary band or the 2150-2160 MHz multi-point distribution service band. The FCC requests comment on the technical feasibility of sharing the 2 GHz band on a co-primary basis, and whether there should be mandatory negotiation between existing users and operators of new services.

The spectrum sharing approach has several advantages in that it would encourage the most efficient use of limited spectrum, and thereby result in many long term benefits to consumers and industry. Reputable entities within the personal communications systems (PCS) industry also believe that this is the preferred approach. Notable is American Personal Communications (APC) which has been granted an experimental license by the FCC to develop and operate PCS systems in the Washington-Baltimore market. APC has evaluated the top 11 U.S. urban markets, where interference problems are much more likely than in rural areas, and has stated in published reports:

> "APC's analysis and testing demonstrate clearly that sufficient unused spectrum in the 1850-1990 MHz band exists to allow immediate initiation of PCS services -- using available technology and with no need to clear the entire 1850-1990 band."

APC also repeated this position in oral testimony before the Senate Commerce Committee on June 3, 1992.

B. The FCC believes that there is adequate capacity in the higher microwave bands to accommodate the existing 2 GHz microwave users. The FCC is proposing to make all fixed microwave bands above 3 GHz, including both the common carrier and the private bands, available for accommodation of existing 2 GHz users.

NRECA believes that the FCC has wisely assigned radio frequency in the 2 GHz band to a limited number of users

deemed to have important and essential public purposes. These include ensuring the reliability of electric service to the public, providing communications for state and local emergency services, the safe operation of railroads, and other critical needs.

The 2 GHz band is highly reliable and allows for less signal fade than higher frequencies, thus permitting signals to be transmitted over longer distances. This is extremely important in the remote rural areas served by rural electric cooperatives, where lines transmit and distribute power over very long distances. The FCC bases its analysis on average path lengths, thus ignoring the many longer paths used in the 2 GHz band (10% of all paths are over 35 miles, according to the OET study). Shorter paths would require more relay stations, resulting in more failure points and longer signal processing times.

A forced relocation of current 2 GHz facilities to a higher frequency could jeopardize the communications networks that ensure the reliable, efficient flow of electric power. Some rural electric systems have reported that they have experienced unsatisfactory reliability in the use of microwave facilities in the 6 GHz range. A forced migration of all electric utilities to the 6 GHz range could jeopardize reliability because:

- there is an inherently greater tendency for signal fading at higher frequency levels;
- shorter hops would be required at 6 GHz, thereby requiring an increased number of stations with added equipment failure and noise susceptibility;
- more stringent feedline requirements between the microwave and feedline equipment would result, thereby adding to the likelihood of outages; and
- the availability of spectrum at the higher frequency may not be sufficient to permit the use of these frequencies in many locations.

Given the normal growth rate in the higher bands, plus the increased level of licensing in those bands due to loss of the 2 GHz band, there may be no room in the higher bands once the existing 2 GHz systems are required to move. Although the NPRM proposes to waive the eligibility requirements for all microwave bands above 3 GHz, many 2 GHz private microwave users will be unable to meet the technical and operational requirements of these bands. The OET analysis considers the 4 GHz common carrier band as viable replacement spectrum, and yet it does not mention that the

proliferation of earth satellite stations in this band makes coordination virtually impossible or undesirable in many areas of the country.

It has also been suggested that electric utilities could construct fiber optic lines and use these instead of private microwave systems in the 2 GHz band. This is not a realistic option because, unless these lines were placed underground, which would substantially add to costs, they would be susceptible to damage during hurricanes and other natural disasters. Furthermore, placing lines underground requires continuous right-of-way and exposes the lines to being accidentally severed by construction crews. In addition, the requirement for redundant paths would make fiber optic lines less reliable and/or prohibitively expensive.

Even if an option as equally reliable as existing utility communications could be found, it is likely that a forced migration to such a system would adversely affect reliability. Designing, installing, testing, and debugging highly technical communications circuits is not an exact science. Unfortunately, systems in the field often do not operate exactly as they do in the laboratory or on the drawing boards. The existing microwave system used by utilities evolved over a long period with many incidents of interference requiring resolution. Migration to a new system would require the same time-consuming process. In other words, the mere act of migration would have a very detrimental impact on electric utility system operations.

C. The FCC requests comment on allowing all currently licensed 2 GHz users, not just state and local government licensees, to continue to operate on a co-primary basis while negotiations are underway for the use of the spectrum.

The FCC proposes a transition period during which flexible negotiations between existing users and parties developing new services will be encouraged. The FCC's proposed transition would: (1) allow existing facilities to remain co-primary with the facilities of new services for a fixed time, such as 10 or 15 years, or open up new blocks of spectrum to new services in phases; (2) allow existing facilities to continue to operate on their currently assigned frequencies on a secondary basis after the end of the transition period; and (3) permit state and local governments' fixed microwave facilities to continue to operate on a primary basis indefinitely.

The FCC's proposed reimbursement program would be unworkable in several situations: if a new service is allocated on an unlicensed basis, existing users will not be

compensated; if a new service involves multiple licensees "sharing" channels, it would be difficult to establish which licensee is responsible for paying an existing user's reallocation costs; if a new service is a satellite service with nationwide coverage, it is doubtful whether the satellite operator(s) will agree to relocate all existing microwave users; and, if new services are not authorized and ready to negotiate within the 5, 10, or 15 year periods proposed by the FCC, existing users will not be compensated. Also, it will be impossible to impose an obligation on new users to negotiate with existing users until interference criteria are developed, and interference criteria cannot be developed without first knowing what technologies will be placed in the band.

NRECA believes that the FCC cannot make a valid, objective public interest evaluation between an existing service and unknown, future technologies. The FCC's choice of bands appears to have been based on subjective criteria, because less-congested bands would be more suitable. There is no technical basis for distinguishing between state and local government 2 GHz users and other users of the band. In fact, many users are jointly owned, operated and relied upon by state and local governments and private sector utilities. Similarly, there is no technical justification for the FCC's proposal to exempt broadcasters from forced migration from the 1990-2110 MHz band that they presently occupy. Both of these actions appear to be politically motivated.

New microwave facilities, and expansion of existing systems in the 2 GHz band would only be permitted on a secondary basis. Moreover, any major modifications of existing 2 GHz facilities would automatically convert those facilities to secondary status. It is unreasonable to expect all nongovernment licensees to accept secondary status, with no possibility of reimbursement, after an arbitrary time period of 5, 10, or 15 years, or through a phased-in approach. The FCC should continue to grant 2 GHz microwave licenses on a primary basis, particularly if an existing licensee is seeking a reasonable system expansion or modification.

D. The FCC requests comment on whether and to what extent the possible availability of adjacent Federal government spectrum in the 1710-1850 MHz band might affect the market-based access approach.

The Federal power agencies, which include the Bonneville Power Administration, the Tennessee Valley Authority, the Western Area Power Administration, and the

Southwestern Power Administration, operate microwave facilities in the 1710-1850 MHz government band fully compatible with, and just below the frequency band used by many electric utilities. 532 rural electric systems receive wholesale electric power, either directly or through a generation and transmission cooperative, from a Federal power agency. Many municipal and investor-owned utilities also receive power from a Federal power agency. The microwave facilities of these Federal power agencies and other utilities are interconnected. Withdrawal of frequencies assigned in the 2 GHz band from rural electric and other utilities would adversely affect the ability of these Federal power agencies and their neighboring utilities to jointly coordinate their power supply activities.

There is substantial unused spectrum in the 1710-1850 MHz band. This spectrum is currently being administered by the National Telecommunications and Information Administration (NTIA), an agency in the U.S. Department of Commerce. This is the same frequency band that is used by Federal power agencies, and is fully compatible with spectrum in the 1850-2200 MHz band used by electric utilities.

The FCC should negotiate with NTIA over shared use of the 1710-1850 MHz government band as replacement spectrum, and does not need legislation to do this. This shared use would have several advantages:

- o reliability would not be diminished for electric utilities and others currently in the 1850-2200 MHz band, because the 1710-1850 MHz band is equally reliable;

- o a spectrum reserve for pocket sized telephones and other emerging technologies could be created in the 1850-2200 MHz band as proposed by the FCC; and

- o the cost of moving existing 1850-2200 MHz users to the 1710-1850 MHz band would not be substantial, thus eliminating the need for large expenditures and/or negotiations between existing and new users concerning the cost of migration to other bands.

E. Although the NPRM did not request comment on the FCC's selection of the 1850-2200 MHz band as a home for emerging technologies such as PCS, NRECA believes that there are several possibilities, including both spectrum above the 2 GHz band, and a portion of the unused spectrum in the 1710-1850 MHz band that is currently administered by the NTIA.

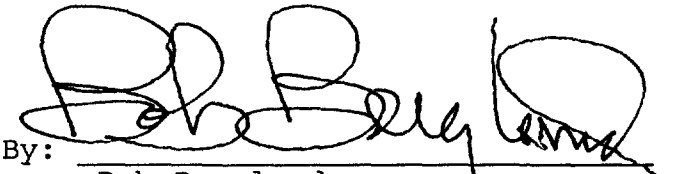
In summary, there are several viable options that make it unnecessary for the FCC to force electric utilities to vacate the highly reliable 2 GHz band of the radio frequency spectrum. These include: (1) finding an alternative band for PCS; (2) moving electric utilities to the Federal Government's 1710-1850 MHz band in which there is substantial unused spectrum; and (3) allowing PCS to share spectrum with existing users, provided that reliability for existing users is not diminished.

IV. Conclusion

The NRECA membership is deeply concerned about reallocation of spectrum in the 1850-2200 MHz band for the development of Personal Communications Networks. The 1850-2200 MHz (2 GHz) band is very reliable and ideally suited to electric utilities which are one of the few users of microwave that require 'real time' telecommunications capability. This split-second accuracy is required to regulate electric utility operations. As part of their extensive private telecommunications systems, rural electric utilities rely on private fixed microwave in the 1850-2200 MHz band to support the provision of reliable utility services to our consumer-members. We, therefore, urge the FCC to retain the availability of this radio spectrum for the use of utilities in order for them to continue to provide reliable electric service.

Respectfully submitted,

NATIONAL RURAL ELECTRIC
COOPERATIVE ASSOCIATION



By: _____
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